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W. H. Ballou

pahざる Yac names

Cua <sup>black</sup> puma) xana - black bear

Cua <sup>gray</sup> pahtya) xana - grizzly

(Izba) cuena - clut tree  
wood

Quawa peváva - spruce rabbit, L. brevi

upstetida

1904

July 4

Left Washington at 10:05 A.M.  
B & Q. for New Mex. & got  
well over the mts. & down toward  
the Ohio line before dark.

Was surprised to find most of  
the wheat & rye (winter varieties I suppose)  
cut & stacked. In the valley just above  
Cumberland they were reaping. The day  
was fairly warm before we entered  
the mts. but as we reached the summit  
of the range the air was cool, fresh  
& bracing; the country had a spring  
like appearance, the big laurel was  
full of blossoms. Beautiful meadows,  
streams & springs, open woods and  
hemlock groves made us want  
to stop and pitch a tent.

We looked for good camp  
grounds & decided on one 5 or 6  
miles east of Deer Park &  
another about as far west of  
Oakland. These are wild  
spots that would be a lot  
of exploring & study.

July 5. Woke up in southern Indiana & reached St. Louis at noon. Across southern Indiana & Illinois the season is more advanced than at Washington. The *Zizania radiata* are abundant all along on the prairies & in full bloom while our vines of corn have only small buds that will not open for a week at least & none were seen in blossom east of the mts. The wheat & rye are all in stock & have been for a long time. Corn & other crops are in advance of those around Washington as they should be.

Went out to Exposition in P.M.  
& especially enjoyed the Philippines exhibit.

Left for Kansas City at 10 P.M.  
via Mo. Pac.

Kansas

July 6. Reached Kansas City at 8 A.M. on Mo. Pac. & left at 9:45 on Santa Fe for Pueblo. The Kaw River is over its banks & full of floating drift, lots of fields flooded. All streams & ponds full. Country green & rich but shows slow effects of too much water.

Notices of Lower Sonoran plants noticed near Kansas City or beyond. Westward the woods soon retreat to narrow fringes of low trees along streams mostly box elms, cottonwood, elm, low oaks <sup>etc</sup> & celtis. Near Burlingame we heard a bluejay. & west of Osage City heard two meadowlark songs that from the train seemed to be neglecta.

West of Osage City the country becomes more plains, & is characterized by lots of plains species of plants, *Petalostemon idace*, *Amorpha canescens*, *Psoralea (argophylla)*, *asclepias*, *Merolix* etc.

West of Emporia we follow up the Cottonwood River which is out over

the valley. Ranches & towns are flooded, grain fields are big lakes houses up to the windows in water & one whole town standing in 4 to 6 feet of water. For miles our train plows through water nearly over the wheels sending great waves off on the sides & leaving a long wake behind where no track is visible.

At Elmdale a mockingbird was singing.

Until dark we continued to cross flooded bottoms with water over the tracks.

To Pueblo

July 7. Reached La Junta soon after daylight + Pueblo about 7 A.M. got some good notes on plants between the towns & around Pueblo where we have to stay till 12:20 tonight for a train on D. & R.R. to Tuscon.

The country around Pueblo is very arid but the river valley is irrigated & covered with farms of alfalfa, corn, fruit etc. Apple & cherry trees are loaded with fruit.

Out on the ridges just east of town the country is arid & desert like with *Atriplex canescens* & *cooperi* the dominant shrubs over one slope, *Opuntia arborescens* over another, or *Sarcobatus* over dry bottoms.

Plants live off to the west of town but on a long ridge to the N.E. one is black timber, probably nut pine or juniper.

A lot of birds were found in the little park where water was running from the hydrants. Saw one *Callipepla squamata*.

To Taos

July 8. Woke up before daylight just before going over La Veta Pass & watched every change as soon as light enough. Reached the pass about sunrise.

Passed through oak & nut pine foot hills then yellow pines & at summit were in *Pinus montereyana*, firs & spruces & aspens. Steep slopes, half timbered, some big meadows & pastures, small streams, no ranches, good camp grounds. summit 9242 ft., cold.

Down west slope the same kind of country but gentler slope, long canyons, oak brush & timber.

Canadian zone covers the summit of the pass & while punctuated by strips of transition on hot slopes a strip 20 miles wide along the crest of range can be mapped as Canadian. Transition zone covers the side of the range in red lava and before the open valley begins it is all Upper Sonoran. H. Garland is near the eastern edge of the valley but out in the

open flat bottom on a level with  
the whole San Luis Valley, which  
is an enormous arid plain over  
a lake bed. At Alamosa we crossed  
the nearly dry bed of the Rio Grande  
and turned south on the Narrow  
Gauge to Antonito, then transferred  
to the mixed train for Tres Picos.

The San Luis Valley is  
all Upper Sonoran, very arid,  
and now very dry & barren save  
for irrigated areas mainly around  
the edges where streams come  
down from the mountains.  
The Rio Grande runs through the  
valley to the south but the valley  
floor slopes down to the north.  
The highest part of the valley, or  
its southern rim is just south  
of the New Mex-line, where a series  
of old lava craters reach  
across & lava flows have  
built up a dam that has  
evidently held the water in a  
great lake but through which

The Rio Grande has cut <sup>deep</sup> a canyon with stratified lava walls. This canyon reaches from the Colorado line to Embudo & is from a few hundred to 1000 feet deep.

The principal vegetation of the San Luis Valley is *Artemesia tridentata*, *Bigelovia canescens*?, *Tetradymia*, *Gutierrezia*, *Sarcobatus* or *cactus*, a little white spined *Opuntia*.

Along the N.E. side of the valley the Sangre de Christo Mts. rise high & bare & white & steep. I never saw a more utterly barren range, that reached so high. Oak brush & scrubby stuff seems to cover the base, but the upper slopes that should be timbered are bare slide rock. On the east the Spanish peaks in the Cobrera Range are not so high. The San Juan Range west of the valley is apparently low & mainly timbered.

Ute Peak is a big crater south of the Colorado line over the east base of which we pass on the narrow

yague. It is rounded & mainly  
timbered with nut pine around the  
base, then a belt of yellow pines & high  
up on the N.E. side a considerable  
area of aspen & spruces. This  
is the largest of half a dozen similar  
clusters in this part of the valley.  
Olla Peak just west of the Rio Grande  
is very similar & blade to the base  
with timber, apparently from a distance  
both nut pines & yellow pines.

In San Jons Valley we saw  
4 or 5 *Lepus campestris* but no  
*texianus* & no one I could find  
had seen a black tailed jackal rafpit.  
One ranchman told me of a few  
antelope in the valley yet, but says  
they are scarce. *Cynomys gunnisoni*  
is common.

Reached Taos Pueblo at 12 &  
started for Taos at 1 P.M. arriving  
at 7 P.M. The valley is very  
dry & barren. No rain, no grass,  
no crops, very little water in Rio  
francisco Hondo.

Zoo's

July 9. Moved over to Mr. Phillips house + went out to Martinez place to look at my horses. Found them in good condition.

July 10, Sunday. Did not get much done, as Surber is not very yet + none of my supplies has come. Went out to Pueblo.

July 11. Hired an Indian, Sun Elk, and got my outfit together + waded up into the canyon 2½ miles above the Pueblo + camped in the big grove of *Populus Angustifolia* called Glocietta. Camped late but were glad to get away from town.

July 12. Took most of the day to get camp straightened out + get the wagons repaired + in shape for travelling.

July 13 - Sent the other wagon down to be repaired + got mail. Wrote letters + did things around camp.

July 14, Took a trip over valley  
for birds & got quite a lot of  
specimens. Wrote some but am  
half sick not very energetic.

July 15 - Climbed over the slopes  
above camp made up skins,  
wrote up notes & set traps.

July 17 Took an Indian, Manuel,  
and went up the Mts., following up  
to head of Ladero Creek at as it  
comes out of Bear Lake at 1200 feet,  
then over the ridge above timberline  
overlooking the Indian's lake, from a  
point at 12700 feet, then down to  
Purple Creek and down it to camp.  
A hard day's ride over glorious  
country with good notes along 2  
lines of the mountain slope.

July 18, Sunday, Made up specimens  
& wrote up notes.

To Hondo & Taos Mts.

July 19, Packed up & went to Taos for supplies & then over to Arroyo Seco & the Hondo. Camped 2 miles up the Hondo Canyon. After leaving the Indian grant sheep have made the valley a desert. The crops at Arroyo Seco & the Hondo are pretty good.

July 20. Continued up the Hondo Canyon to Twining where we left our wagons & heavy outfit & put our loads on 4 pack horses continued up the South Fork, or Lake Fork to the little lake at head of canyon about 5 miles south of Twining. Camped 100 feet above the lake on ridge at 11200 feet by aneroid. Twining read 9500, but it reads low today.

July 21. Climbed to top of Wheeler Peak as called here, but Taos Peak of the Land office map, which rises from east edge of our little lake. Aneroid at camp read 11200, at timberline 12000 & on peak 13500. Another peak just

north of Blue Lake, head of Pueblo Creek, & 2 miles S.E. of Wheeler Peak seemed to be about as high so we went to it & found it 13400. Wheeler Peak or Taos Peak, is evidently the highest peak in this range & the highest in New Mexico. It has gentle, mainly grassy slopes & a horse can be ridden to the top & along the whole crest of the range. The peak to the south of the highest should probably be called Taos Peak as it is the highest one overlooking the lake of the Taos Indians. We hunted the high slopes for ptarmigan but found none. It rained & haled while we were on the peaks so we had little chance of finding things. My hands go so cold I could not write plant names in my book.

Two large flocks of sheep are herded in the head of Red River canyon on the east side of Wheeler Peak. They were run out of Lascorro Creek canyon by the Indians.

July 22 - Sent Sam Elk down to Amigett for mail & while he was gone explored the upper end of the canyon around the meadows above the lake.

In P.M. waded camp to falls at south end of lake. Rainy & cold part of day.

July 23. Sent Sam Elk & his cousin over ridge for Ptarmagins. They got one & saw 2 more. Made up skins, set traps, made plant list. Cold in morning, hard frost, cold rain after noon.

July 24, Sunday. Too cold & rainy to do much but try to keep warm.

July 25 - Sent Sam Elk to Taos for gun & grub. We climbed to top of Wheeler peak & followed miles along crest of range in search of Ptarmigan without success. Got a fine set of plant notes with limits of range.

Set a line of traps up to 12700 feet or 300 feet above extreme timberline.

Toos Mts.

July 26 - Went to traps & climbed over upper slopes but did not get much of importance. Sam Elk returned just before dark with my old shot gun.

July 27 - Looked up line of high up traps as the Pheasants proved to be only *Microtus vordax* & the woodchucks get into my fox traps so fast the fox has no snow.

July 28 Climbed to top of ridge just east of Wheeler peak & followed crest of ridge to top of next peak east (Red dirt Mtn. - Grito pean na nana) Then over the peak & along the ridge to the peak N.E. of the Blue Lake. Found a flock of *Zenaidura australis* & shot one, but could find no *Pternistis*. The clouds covered the mts. most of day & half the time I could not see far. Often I was in a dense cloud. Several times the clouds cleared for awhile & I had a grand view of the mts. north & south. The Spanish Peaks & Sangre de Christo.

+ Costilla Peak to the north, the  
Jemez & Pojoaque groups to the  
south, the Raton away to the N.E.  
& several ranges to the west of the  
Río Grande. The Blue Lake of the  
Taos Indians was brilliant when  
the clouds lifted, deep turquoise blue  
varying with different lights to brilliant  
emerald green around the edges.  
It is very deep & beautifully set  
in the Hudsonian forest just below  
timberline.

Several showers came up just  
afternoon & I got soaked in ice water on  
the peaks. Numerous local showers  
could be seen on all sides, some  
crossing the arid valley where rain  
is much needed.

Slid down the Mts. & returned to  
camp at 2 P.M. tired & wet & hungry  
but with a good lot of notes on  
distribution & general character  
of country.

Taos Mts.

Aug. 2. Packed up & moved camp down to the meadow only 2 miles above Twining and at 10800 feet. Here the canyon slopes north with steep slopes about 2000 feet high on each side, so the bottom is practically a N.E. slope. Most of the plants of the meadow are Hudsonian species. So are many of those of the woods, while on the slopes east of us where it turns toward the south west the aspens run 500 feet at least above us. In the bottom of the gulches they do not come up to 500 feet below.

Aug. 3. Set traps near camp but it rained so much of the day I could not do much.

Aug. 4. Gant arrived in evening

Aug. 5 - Sent Sam Elk to Arroyo Seco for supplies

Twining

Aug. 6. Went down to Twining and then up the main Hondo and to top of ridge above sawmill & over ridge a little way on trail leading down to Red River. A good wagon road runs to summit. The sawmill is at 11100 feet, the summit half a mile beyond is 11200. This is not a main divide and it is said to be a little higher than the summit between Red R. & Moresco Valley, which forms the main divide. This summit is merely a saddle between Gold Hill & Wheeler Peak. It is heavily timbered with a mixture of Canadian & Hudsonian trees & plants. Aspens do not reach up to it, and *Pinus aristata* comes down to 11000 on the S.W. slope.

Saw an old fashioned cradle on the way up to saw mill. Intended to photograph it on my way back but forgot to -



## Hondo Canyon

Aug. 8. Broke camp & packed down to Twining, then loaded up wagon & continued down canyon to old saw mill near lower end & camped at about 2 or 3 miles above toll gate. Aneroid at Meadow Camp read 10700, at Twining 9850, at old saw mill camp 8350.

Aug. 9. Took the team & went down the Hondo for hay & grub - Went through the little Mexican town of Valdez and to a ranch 2 or 3 miles west of Arroyo Seco where we found potatoes, beets, cabbage & lettuce, & such green food that we were hungry for & also found fruit trees growing & learned something of the crops & climate as well as getting a list of valley birds & some good mammal notes. Aneroid at camp read 8150, at toll gate 7900.

## Hondo Valley

Aug. 10. Remained at camp in canyon  
at old saw mill.

Aug. 11 - Broke camp & went down to  
toll house at mouth of canyon &  
camped for the night just below it.  
Hunted in the Hondo bottoms for a mile  
or two below camp, down among the  
farms. Found Castilleas, Githas,  
Pentstemons, Lupines, & Anianthus  
flowering in great profusion and  
the humming birds swarming over  
them, Brilliant male rufus were the  
most numerous but ~~Stellula caliope~~  
were common.

The farms are in little squares  
like a checkers board, running across  
the bottoms on both sides of the Hondo.  
Wheat, corn, and peas are the commonest  
crops but oats, barley, potatoes,  
squashes, cabbages, onions, lettuce,  
and beets are raised. Lots of  
apples are raised & the trees are  
thrifty & bear well. Plums are  
raised & seem to be the big blue plum.  
Pears & some peaches are said to  
be raised & we saw a few cherry trees.

Hops grow in wild profusion over the bushes & are loaded with fruit. Choke-cherries are abundant & just ripening & the trees are full of robins & cedarbirds. Ribes leptanthum grows in great clumps & hedge rows & is loaded with ripe fruit that is delicious if you risk the thorns in getting it. The people do not seem to use them much & only the birds pick them extensively.

The Mexicans live in little adobe houses in as primitive a style as could be imagined, irrigating their little fields & living apparently on what they can raise. Their yards are usually full of hollyhocks, poppies, marigolds & such showy flowers.

In the middle of the valley is the little old town of Valdez - long called San Antonio, as typically Oriental a village as could be found in the heart of Mexico.

The mesa along the sides of the river valley is 300 or 400 feet above.

To Questa

Aug. 12.

Moved camp down the river about 4 miles and camped on top of plain at south edge of Honda Valley. Toll gate camp 7900 ft., Valdez 7700, camp on mesa 8000.

Took Sam Elk & went over to Taos for supplies & to send specimens. We are about 10 miles nearly due North of Taos.

Aug. 13 — Remained at camp, hunting & trapping in river valley & out over plain.

Aug. 14 — Broke camp & followed down the river about 2 miles & crossing where an old brewery used to be kept by a Frenchman who was killed by the Indians at the same time as Governor Beaubien. Then followed up a long dry wash to the north to Agua Lobo, then down to San Cristobal, then up again to Loma, then down to near the Red River between the mouth & Questa. Came about 20 or 25 miles through

junipers & yellow pines country open  
woods with good grass but little  
water. The 3 settlements mentioned  
were all we saw.

At camp the aneroid read 8000,  
at the Horro River 7400, at Pena de Lobo  
8500, at San Cristobal 8100, at  
Lamay 8800, camp near Red River  
8000.

The whole country north of the Horro  
& east of the Rio Grande is covered  
with either yellow pines, mainly on N.E.  
slopes or above 8500 feet on S.W. slopes,  
or a fine growth of nut pines & juniper  
including both species of juniper.  
The timber also extends along both  
sides of the Red River valley, but  
open plains stretch north from  
near Questa. On the west side of  
the Rio Grande the numerous craters  
& lava ridges are all timbered  
with yellow pines or nut pines which  
covers more than half of the country.  
The open valley strips are arid  
sage plains that wind around the  
buttes. The Rio Grande Canyon is all

## To Questa

timbered with nut pines & junipers, well back of over the lava rock runs. The creek at San Cristobal runs a little ditch full of good water that keeps a narrow line of little ranches green.

Camped at a spring 200 feet above Red River among beautiful junipers & big yellow pines. Good grama grass covers the ground & furnishes fine feed for the horses. Near the settlements the grass has been mainly killed out by over grazing but the scarcity of water protects it farther back.

Aug. 15. Struck Red R. about a mile from camp & then followed up the valley about 2 miles to Questa. Then about 3 miles farther up into the mouth of the Red River Canyon & camped.

Aneroid at Camp 8050, at Red R. 7850, at Questa 8100, at camp 8200. Came about 5 miles.

## To Red River Town

Aug. 16 - Continued up the beautiful canyon to the little mining town of Red River, where we got a good dinner & then followed up Bitter Creek about 6 miles to the fork & then up Lost Trail Creek about 2 miles farther & camped in a little park in the aspens at 10700 feet. The last 2 miles of the road was very steep & stony & wet & slippery from a hard shower, so the team was about worn out when we reached camp at 6 P.M.

Aneroid at camp in morning read 8200, at Red River town 9250, mouth of South Fork 8500, Camp 10700.

Upper Sonoran zone reaches up on S.W. slopes to 8500 feet & a few nut pines & junipers struggle up farther. On N.E. slopes it does not run above about 7800 feet.

Transition zone begins on N.E. slopes & in bottom of valley along streams at about 7800 feet near the mouth of the Red River. *Populus angustifolia* grows along the streams & yellow pine comes

down along ~~the~~ cold slopes & the Rio Grande. Up the canyon yellow pine extends to about 9000 feet on S.W. slopes but *Pseudotsuga* & *Pinus flexilis* reach to 10000 S.W. in abundance.

The <sup>upper</sup> slopes of the canyon become 50 story & rough for passages.

The town of Red River is in a mixture of Canadian & Transition.

Canadian zone - comes down in the canyon on steep N.E. slopes & reaches to about 8500 feet - a trace to 8000, but begins on S.W. slopes at about 10000 feet.

Hudsonian zone shows a trace over-sentiment at Anchorage at 11000 feet in meadows & on cold slopes.

The whole Red River valley is heavily forested except where the bottom widens out into meadows & fields and where the slopes have been burnt. Much of the timber is valuable for lumber & young forest is rapidly covering the burns.

*Pinus flexilis* deserves special mention from its abundance &

good size. For miles both along  
the stony & barren sides of the valley,  
it is the dominant tree and often  
with a trunk  $1\frac{1}{2}$  to 2 feet in diameter  
that would cut 2 good 16 foot logs  
not very limberly. It takes the place  
of ponderosa in the rougher part  
of transition zone. Pseudotsuga  
also is abundant all up the valley  
and a few trees straggle up to  
10,500 feet on S.W. slopes.

Populus tremuloides is probably the  
most numerous tree in individuals  
& often forms beautiful groves  
of trees 8 inches to a foot in diameter  
while many trees could be selected  
2 feet in diameter that would cut  
3 good logs above a foot in diameter  
at top. Much of the original forest  
has been burnt out and great areas  
stand dead & bare with the bark  
dropping from the hard trunks of  
the vast like spruces & firs.  
In places fir has run up the steep  
slopes in narrow strips, leaving  
gaps between the solid black green.

Anelos Mine & to Costilla River

Aug. 17 - Remained at our aspen park camp to do some work & let the roads dry so we can get up the rest of steep slope to summit. Went up to Anelos mine & back to size up the country. Concluded we had better push on to the Costilla Peak country tomorrow.

Aug. 18 - Fortunately there was no more rain in the night & the roads are in good shape. Put both teams on the load & hauled it to top of the steep slope, a mile & a half, & then went back for the buggy. Tipped the load over on a side hill but it fortunately struck a tree & went only on the side, the only damage was a broken back top. Hauled it back with the team & a rope & continued up the hill.

On top of the first ridge at the Anelos mine, where the country opens out in big meadows & grassy parks at 11,800 feet we strongly tempted to camp for a few days & work toward the head of Bitter Creek to the west where we could

timberline slopes on Latil Peak.  
A little run through the woods showed  
abundant signs of deer & snowshoe  
rabbits & blue grouse, there are said  
to be a good many black bears, the  
stream is full of trout, salmonids;  
on ripe & very abundant, all of  
which, with the combination of the  
big parks & meadows bordered by  
beautiful forests & full of creeks  
& springs made a tempting combina<sup>n</sup>  
still we thought it best to get  
over the main divide & into the  
Castilla country.

After leaving the Anelos Mine  
we climbed another long ridge,  
the divide between the waters of Red  
R. & Castilla R., up an easy grade  
through a forest of dead spruces  
to the summit at 11350 feet, where  
we had a magnificent view of the  
Taos Mts. from the north side.  
Whaler peak, & Read earth peak  
with high rocky peaks to right &  
left made a striking display while  
Gold Hill with its big N.E. cirque is a

7  
8  
9  
10

finest peak by itself. The view is up the South Fork of Red River & over some 20 or 25 miles of finely forested country.

~~Gold~~ Baldy looms up bare & bald as ever to the S.E. of us & apparently not 25 miles away. To the North a peak reaching only a little above timberline must be the Castille Peak of the land office map but Sun Elk thinks it is Ponill peak & that Castille is the higher group west of the north arm of Castille River.

From the summit we go down a long easy grade to Labelle at 10100 feet at the edge of the big, open park valley of Cowanache Creek where we strike the Elizabethton & Castille road. A few miles to the west we strike the Cowanache Creek & at 9700 feet and follow down it to the west about 5 miles to Castille R. at 9400 feet, then up the river a mile or two & a quarter of a mile up a side gulch & camp at 9700 feet.

The Conache & Castilla valleys  
are wide, grassy park like valleys  
with here & there a grove or point of  
timber coming down on the side slopes.  
They afford fine summer range for  
cattle & sheep - we in the San Joaquin  
Christo Grant & evidently are leased  
or rented to mainly non-resident  
stockmen. We saw a few sheep camps  
but no ranches. A few old abandoned  
ranches mark the places where early  
settlers were driven out of the grant.  
One old saw mill above the mouth of  
Conachee Creek was abandoned with  
a big pile of logs left unsawed.

The timber along the sides of the  
valley is mainly *Picea pungens* and  
*Aspens*, but a few *Pseudotsugas* were  
seen and on rocky slopes *Pinus*  
*aristata* comes down close to the  
creek & river. The valleys are  
mainly Canadian zone but  
probably carry a trace of  
transition.

*Cynips quercusfolii* are abundant  
and badger holes & *Thomomys* tracks  
wounds common.

## Up Costilla R.

Aug. 19. Sun Elk killed a fine big coyote - apparently a Canis lepto, which had its stomach full of fresh mutton including wool & bones. The bones were well ground tho in pieces as big as peach pits. The lower intestines were full of feces that looked like clay but were really largely bone dust. There were ship ticks on the coyote which was an old male in good condition & good red summer pelage. Before skinning I lifted & estimated his weight at 40 lbs. He was not fat.

We got a late start and followed up the Costilla valley mainly north for 10 or 12 miles to the wide part of the valley east of the Culbra peak and nearly due north of Costilla Peak. The valley is open & park like all the way, varying from a mile to 5 or 6 miles wide between the strips of timber coming down the sides. The slopes appear not very steep & either heavily timbered or grassy & park like.

Aspens & piñons form the bulk of  
the timber but a few *Pseudotengas*  
were seen & lots of *Pinus aristata*  
on all rocky slopes.

The valley is not over stocked. Grass  
is fine, there are no ranches except  
2 or 3 little Mexican places. Most  
of the stock seen was a few herds of  
sheep.

Camped 100 or 200 feet above  
valley in a side park under an  
aspen grove.

Anchored at starting 118700, at  
camp 10300

A hard frost in morning, not  
in forenoon, cold & snowy toward  
night.

Lots of people are camped in  
the upper end of Costilla Valley fishing.

Up Cubbea Mts.

Aug. 20 - Gant & I took our horses in + rode up the trail to about timberline then walked to crest of range and followed around to top of highest peak in the Cubbeas, by some called Costilla Peak, but not the Costilla Peak of the maps. it is the southern point of the Cubbea range when half encircled by the Costilla River.

Our aneroids read at camp mine 10700, Gants 10500 feet on starting + they read on the peak ~~13~~ mines 13400, Gants 13600. This is the highest peak south of Spanish Peaks until Wheeler Peak rises 100 feet above it. By boating across to Costilla Peak (generally known here as Little Costilla, or Curroo Peak) we seem to be about 100 feet above it.

The Cubbea Mts. are a well defined range by themselves, separated from the Cimarrons by the Costilla & Roanoke valleys. The Cabrestos are a small bunch lying between the Costilla & Red Rivers and belonging with the Taos Mts. if with anything. From the peaks we had a grand view of the Taos Mts., Cimarrons,

on the south, the Spanish Peaks & Sangre de Cristo on the north, the Raton & Sierra Granda away to the east, and endless numbers of craters over the plains to the west.

This southern end of the Sangre de Cubria range is a wide topped mass with usually one escarpment and broad slopes. You can ride all over the top, including the highest peaks, & over miles of grassy plain nearly 1000 feet above timberline. In fact they are so open & accessible that herds of sheep have swept them almost bare of vegetation. The peaks are long swells with stony & sodded surface. The escarpments are mainly N. & E. on this part of the range with little lakes & meadows at their base near timberline. In one place at 13300 a big snowbank still remains.

Streams & springs connect around the base of the peaks & at the present time rain pools fill the depressions over the upper slopes. The side slopes of the range are

thickly timbered except where burned off; in  
Aspens form a large part of the Canadian  
zone timber, *Pinus aristata* is abundant  
in Hudsonian with *Picea engelmanni*  
*Abies lasiocarpa* (or *arizonica*), but it also  
grows on exposed valley or barren gravelly  
soil lower down in the valley.

The whole set of alpine & Hudsonian zone  
plants occur on top of the range - same  
as in the Taos Mts. but first sheep have  
played the mischief with zone plants  
as well as rare species.

See note book for list of plants on top.  
If our aneroids are reading correctly  
timberline is steadily increasing in height tin-  
to the north, being near 12600 on S.E.  
slope and 12800 on S.W. as an extreme  
limit. This may be due to erosion in  
basinets readings as to increase of  
base level. The big valley on the east  
of the range lying from 9400 to 10700  
feet & the San Louis valley on the west  
at a high level.

Down to Beaver Camp

Aug. 21 - Followed down Costilla River  
to just above the Narrows, a deep  
impassable canyon and camped  
at 9500 feet at a little spring creek in  
a side gulch 100 feet above the river.  
A colony of beavers with several big  
dams & ponds & houses was the  
immediate cause of our camping.  
Came about 15 miles down the river  
and about 5 miles below the mouth of  
Conanche Creek & Gibraltar rock.  
All the way down beautiful valleys  
with grassy sides & bottoms but  
no settlements.

Began to strike traces of transition  
zone at mouth of Conanche Creek on  
S.W. slopes and at our camp were  
fairly in transition with yellow pines,  
flexilis, & douglas spruce over  
open S.E. slopes to 500 feet above us.  
Still *Pinus aristata* is abundant  
on rocky slopes with flexilis &  
ponderosa. I can't account for  
it unless this proves to be another  
form - possibly *balfuriana*.

## To Castilla

Aug. 22 + 23. Remained at camp studying & photographing beavers.

Aug. 24 - Started down toward Castilla in P.M. Continued down the river a mile to mouth of Latir Creek, then up it a mile & over a high ridge to get around the canyon - The Narrows - then down to the Castilla valley below the canyon where the good ranches are. Arrived at camp 9850, at mouth of Latir Cr. 9350, top of ridge 10300, river below canyon 9000, camp a mile down valley 9000.

Upper Sonoran zone comes up to 9300 on S.W. slopes in canyon below The Narrows & is marked by nut pines both species of juniper, *Bigelovia*, *Artemisia tridentata*, *Aelianthus amurus*, *Ribes leptanthum*, *Rhus aromatica*.

The little farms along the river valley raise good crops of hay, oats, wheat, corn, peas, & vegetables. They are all Mexicans & the adobe houses seen a part of the picturesque canyon. *Populus angustifolia* forms wonderful groves & strips of timber.

To Antonito.

Aug. 25. Followed down the Costilla canyon 8 miles to Costilla town, then west to Rio Grande and 3 miles beyond, where we made a dry camp on the plains between two lava buttes. Aneroid at camp 9050, at Costilla 8500, at Rio Grande 8100, at camp 8300. Came about 30 miles. Good road & mostly down grade.

Costilla is at the edge of the valley and is a typical Mexican settlement & town, spread out for 2 or 3 miles, with a plaza & store & church at each end of the settlement. Most or all of the water of the Costilla river is used for irrigation. Groves of *Populus angustifolia* beautify the valley but along the streams but otherwise it is a desert, sagebrush valley stretching west as far as the San Juan Mts. except for numerous craters & lava buttes which are black with nut pines, junipers & the higher ones with yellow pines & aspens.

The valley is level, well soiled & pure Upper Sonoran zone.

Near the mouth of Costilla R. we passed through the little Mormon town of Eastdal, rather a nice settlement as far as we could judge in a pouring rain. Then on 7 miles farther west we crossed the Rio Grande Canyon - the very upper end of it, on a fine iron bridge of 3 spans from rim to rim about 75 ft. feet above the water. The canyon is cut through solid lava beds.

To the west lava buttes & craters form a series parallel with the river & we made a dry camp in a gap of this series 3 or 4 miles west of the river, close to the little flat topped black butte on which the Utes killed about 20 Cheyennes many years ago. Sun Elk knew about it & asked a Mexican which butte it was & pointed it out as the one closest to our camp.

The Cheyennes got drunk at a Mexican saloon at Costilla & started for the white camp on the Conejos to steal horses. They were discovered, chased back to this butte where they held them over for a good while but were finally overcome & all but

## To Authorities

one killed. One was left to tell his people about it. Sun Elk remembers the scalp dance the Utes had to celebrate the event at the Taos Pueblo a short time after. & he sang the war song of the Cheyennes to us - those they sang up to their death. The Utes took the song with the scalps as the spoils of war & the Taos Indians learned it from the Utes. As Sun Elk sang it to us after dark in the tent, beating his breast like a drum, it had all the wild battle ring combined with the mournful death chant.

Aug. 26. Continued westward about 6 miles across gently sloping arid plains to the first ranches along the San Antonio Creek. Then another 6 or 7 miles across level plains among the ranches to Antonito. There after getting supplies & a hotel dinner started about 3 miles & camped on the open, level plain with good grass & a glorious view but no wood & only ditch water nearby.

Antonito

Aug. 26 to 30.

Remained at our plains camp trapping for small stuff, but a hard rain every afternoon has hindered the trapping. However we have taken Onychomys, Peromyscus sonoriensis, Mus musculus, Mieris asticus, Perognathus, Perodipus montanus, Thomomys, Spermophilus tridecemlineatus; Zapus, Lepus campestris.

There are lots of Cynomys gunnisoni, some badgers & coyotes in the valley.

The flat plain where we are camped is smooth & level with a carpet of short grass a grass. In places there is a little Bigelowia & Gutierrezia & patches of cactus (*Opuntia polyacantha*)

The farms run along the stream & ditch courses & have lots of trees & meadows as well as good fields, but the mosquitoes are so thick in the woods we did not camp there.

To Alamosa & Del Norte

Aug. 30 - Took a 7 o'clock train for Alamosa & had to stay there over night. Stopped at the Victoria Hotel & found it excellent.

Aug. 31 - Took a 7 o'clock A.M. train for Del Norte & reached there at 9. Went to Windsor Hotel & then tramped over the hills till noon. In P.M. got a horse & buggy & drove up the valley 3 miles west & set traps for Rattordontamps.

The Rio Grande Valley closes in about 25 or 30 miles above Del Norte but to that point it is a beautiful, wide, farming valley full of good farms, big ditches, fruit trees, & nice homes & towns.

Upper Sonoran zone covers the valley & well up the side slopes all around. Junipers & nut pines form a belt over the foothills upon below *Pinus ponderosa*.

Then the open valley is covered with *Begonias*, *gainesensis* & *obtriangularis*, *Gutierrezia*, *Atriplex canescens*,

Del Norte

*Ereobates ornatus*, *Ophiodes*  
*polyacantha*, *Hibantus annuus*,  
*Hibantella*, *Gnathia*, etc.  
For lists see vol. 1 book -

Sept. 1. Caught a lot of *Meriones*  
*aztecus*, *Pseudomys sonoriensis*,  
*Eutamias quadricinctus*, a *Mus musculus*,  
& one *Rhodontomys*. Saw several  
*Lepus pictus*, tracks of *Coyote*, lots  
of *Cynomys ludovicianus*, & birds.

Returned to Alamosa in  
evening & staid over night at the  
Victoria Hotel

Sept. 2. Returned to Antonito & met the  
boys coming in with the camp outfit  
about 6 miles east of town. Got  
supplies and followed up the Conchos  
River about 10 miles west of Antonito  
& camped in the valley just before  
it narrows up to a canyon.

To the north a lava escarpment rises 900  
feet above the ~~the~~ valley & back of this  
a fine double crater rises 700 feet  
higher. The escarpment slopes 10

successive strata of lava flows  
from the top down to where the talus  
hides them. - See photo - The sheets  
are 20 to 50 feet thick & of a roughly  
basaltic formation. The little crater  
above has a wide old rim & a  
steep ~~cone~~ secondary cone in the  
middle.



On the south side of the river valley  
the slopes rise more gradually &  
are covered with timber of  
Transition zone species and a few  
Canadian species toward the tops.  
Upper Sonoran zone covers the  
warm slopes of the valley &  
nut pines & junipers run to the top  
of the lava escarpment.

Our camp on the river bottom at  
8300 feet is close to the edge of  
the cottonwood bottoms that follow  
the river.

Sept. 5 - Started early for Antonio where we got mail & supplies & then took the road for Tierra Amarilla. Crossed stony lava plain in a S.-E. direction for 12 miles & camped on the San Antonio creek at ~~west~~ base of San Antonio mountain at 8700 feet. The creek is in a lava canyon. We camped on top on bare plain.

San Antonio Peak is a great lava crater in the form of a dome but with no apparent concavity. The base is barren but the upper half on the west side & most of the east side is covered with aspens with here & there a strip of spruces or firs. I could not make out any pines. The aspens have been burned & strips of dead timber stand here & there & roads run up to them. There are apparently no ranches on or near the mountain & we could see no trace of water.

To The Tusas R.

Sept. 6 - Followed up the San Antonito Creek a few miles, then bore off to the S.W. up a long grassy valley & then south over a ridge covered with yellow pines, Douglas spruce, *Picea pungens*, *Abies concolor* & aspens. Then down into a long, open valley with good timber around the edges, then up over another ridge and down into the valley of the Tusas River & camped at the fork, a few miles above the P.O. of Tusas. The country is all transition zone and about half timbered & half open. The valleys are covered with weeds & here & there patches of good grass, but sheep have gone over it like a fire. There are no ranches on our whole day's trips except a few sheep camps along the Tusas. The country would be fine for stock if not overgrazed & ruined.

The yellow pines are said to be full of *Sciurus aberti* usually, but this year there are no pines or spruce cones in this region & we could find no trace of the squirrels.

To Hopewell

Sept. 7. Followed up a dry branch of  
Tusas R. about 6 miles to Hopewell,  
then turned north west and struck the  
head waters of the Brazos in about  
6 miles farther. Passed by half a mile  
from the Brazos lakes & went a  
mile beyond to head of a long, grassy  
valley & camped near some springs.  
Arrived at camp on Tusas R. 8450,  
at Hopewell 9700, on summit 10100,  
at camp 9800.

Mainly forested country with big  
grassy park like valleys, a few small  
creeks, lots of grassy springs.  
Up to Hopewell the south slopes are  
all Transition zone with yellow pine  
& Douglas spruce, & *Abies concolor*,  
but from about 9000 feet the N.E.  
slopes are Canadian with aspens,  
*Picea engelmanni*, & *Abies lasiocarpa*.  
Below Hopewell the timber has been  
mainly burned over, but on the  
headwaters of the Brazos are great  
stretches of *Picea engelmanni* & *Abies*  
*lasiocarpa* forest that evidently could  
not be burned & still stands black.

beautiful with clean ground  
beneath the symmetrized trees  
beautiful grassy parks and strips  
where you expect every minute to  
see elk or deer, but where you  
see only horses and cattle.  
One big flock of sheep ranges  
north of our camp but the open  
valley seems to be full of horses  
& cattle - all fat & frisky.  
The grass is excellent & not overgrazed.  
The springwater is perfect.

Sept. 8 Took saddle horses & rode  
south along the crest of the range for  
several miles through beautiful park  
& clean forest country, mainly above  
10000 feet. Could see all over the Chama  
& Tierra Amarilla valleys & the big mts.  
beyond to the SW. - a magnificent  
view over mesa, plateau, valley &  
bold ranges - mainly a forested  
country. Along the crest of the range  
we were above Aspens with only *Picea*  
*engelmanni* & *Abies lasiocarpa*, the only  
2 trees of our level.

To Tierra Amarilla

Sept. 9 + 10. Remained at camp, trapping  
+ taking photos & writing reports.  
Caught 14 *Nicototus nevadae* in the big  
valley near camp. This is an addition  
to the New Mexico's list of mammals.

Sept. 11. Started for Tierra Amarilla.  
Crossed summit of range 3 miles west  
of camp, then came down rapidly  
over very stony & bad road till  
we reached the first bunches at the  
beaver pond - from there down  
the roads were less steep & stony but  
still bad till we reached the bottom  
of valley below the big cliffs, where  
we began to travel rapidly over  
good roads & nearly level country.  
Camped near Encinada about 3  
miles before reaching Tierra Amarilla.

Arrived at camp read 10000,  
on summit 10500, at beaver Pond  
where we landed 9700, upper edge of  
transition zone on W. slope 9100,  
Camp 7700, Tierra Amarilla next  
morning 7650.

The north side of the Brazos

## Zinn-Amarillo

river is a canyon wall, the south side an open mountain slope. The road follows all the way down on the south side & we did not see the Brazos till we camped near its mouth. The north wall rises almost sheer over 2000 feet of granite cliff, equaling if it does not exceed El Capitan or any of the Yosemite cliffs in beauty & grandeur. The wall is cut in two bold headlands standing out like El Capitan & Half Dome, with beautifully plated vertical cleavage. There is none of the real dome structures on arched cleavage but the cliffs have been carved by ice just as those of the Yosemite have.

On the way down we passed a little lake & out in the middle near open water found a fine old beaver house. It has long been abandoned & the top has been burned off but the mud around it is strown with sticks cut by the beavers not many years ago. There were numerous other little meadows.

Transition zone begins at 9000  
feet on west slopes & is marked  
by ~~as~~ unusually fine growth of  
yellow pine where it has not been cut  
for lumber, as it does along the bottom  
5 miles up from Tierra Amarilla.  
The old ~~stumpage~~ shows where the  
site of what has been an unusually  
good forest. *Quercus gambelii*  
also fills transition zone & grows in  
extensive thickets over the slopes &  
ridges. *Populus angustifolia* extends  
up the streams to 8800 feet.

Along this side of the valley  
there seems to be little trace of  
Upper Sonoran zone. *Helianthus*  
*annuus* in the fields is almost the  
only representative plant.

There are no nut pines or junipers.  
Yellow pine strips extend out  
into the sagebrush valley on  
rocky ridges. The crops are  
mainly oats, wheat, peas, beans,  
& garden vegetables. Fruit is  
shipped in from the railroad or packed  
up from Esparola.

To Boulder Lake

Sept. 14. Got mail & grub at Sierra Amarillo and started west for Boulder Lake (or Rock Lake as usually called) on the ~~the~~ Pecos Reservation. The Indians have their annual "fiesta" there tomorrow & as the agent will be there it is my simplest way to report to him for work on the reservation.

From Sierra Amarillo we cross about 2 miles of sagebrush valley before striking the Chama River. Then we soon strike into open yellow pine woods which continue 10 miles farther to where we strike the Chama River again near the saw mill where a mixture of Nut pine & Juniper covers south slopes. Filled our keg at the river & then followed up a half dry, alkali incrusting arroyo 10 miles farther to Boulder Lake & camped. Acreid at Sierra Amarillo stood 7500, at the Chama R. 7200 and at the river was the sawmill 6950. At Camp near Boulder Lake 7300.

Most of the country is yellow pine transition with open sagebrush valley between ridges.

Water & vegetation are scarce & poor. The country has been sheared to death, but there is lots of good yellow pine timber.

Upper Sonoran zone comes in on south slopes all along the Clava River valley but not far back except to the west where nut pines & junipers cover hot slopes close to Boulder Lake. The rock is mainly sandstone which cuts out in flat topped mesas with sharp cliffs & steep slopes of talus. Coal crops out here & there between layers of shale.

Grass is good in places west of the Clava river but there are too many sheep which keep the ground bare over much of the country. No good water. Lots of *Cyrtomis guinivieri*, *Hordeum* & *Cithrus grammurus*. A few *Eriogonums* & numerous migrating birds.

Boulder Lake is a shallow pond of saturated (?) alkali solution, a mile long. The shores are wide & flat & muddy & look like snow.

Sept. 15. Ticarilla Fiesta

Near Boulder Lake we found about 1000 Indians camped for their annual fiesta - mainly Ticarilla Apaches with a few visiting Navajos, Utes, Santa Clares & San Ildefonsos. The camp is scattered over half a mile of ridge & surrounding the racing & dancing ground & probably includes 100 tipis of all styles from the little one side shade wickups



tall



tipis with smoke hole & flap at the top.

I counted 71 tipis for one point & could not see nearly all.

This is the main day but the Indians have been dancing for 2 days past & it lasts all together about 4 days. On a tour of inspection at 9 A.M. among the tipis we found the Indians eating thin breakfasts of boiled mutton or goat meat bread & melons or dressing & painting for the dances & races. At about 10 the chicken runs began

+ the chicken which answered the purpose  
of a foot ball, the players being on  
horseback. The chicken was pulled + banked  
~~until~~<sup>to</sup> used for a quint till it looked  
like an old dog. One horseman kept it  
until the others could get it away from  
him + they were often mixed in a heap of  
15 or 20 men + horses fighting over the  
dead chicken. This lasted half an hour,  
then the dancers began, the racers  
dancing from one end of the track  
to the other past each other. Then  
the racers began, a relay of about  
20 men on a side on a track I  
should say 300 yards long. The  
running, starting, whipping  
& all was similar to that of the Texas  
racers but an additional feature was  
men along the sides with pistols & wine bottles  
shooting blank cartridges to hurry  
the runners. There were many good  
runners & some poor. Most of the  
men were finely built with strong  
chests & muscles + some were Apollos  
in form. The gear consisting of paint +  
eagle down formed root of the dress.

Black & buff & white were favorite body colors brightened up by face paint of diamond dyes & bright neckerchiefs or head dress of feathers. All ran barefooted. After the race they danced again & at 2 P.M. disbanded for lunch. During the last dance bread & apples were showered over the dancers by the squaws from horseback.

The squaws, gorgeously dressed, were well mounted & fairly good riders were a spectacular feature of the day. The small children were usually held with a shawl on the front or back end of the saddle & sometimes on both ends.

Some little races & dances took up the afternoon & the big Medicine Dance was prepared for.

The Medicine dance was to begin in the evening but did not really begin till 11:30. It lasted till 3 P.M. or nearly daylight. It was in the big corral like circle surrounding the Medicine tippee.

This circle 100 feet across, was made of nut pine boughs set



up each way against a top rail forming an enclosure about 6 to 7 feet high & thick enough to support most of the wind. At the far end of the corral opposite the gateway the big tepee, 20 feet wide & 20 feet high held the singers & drummers & as many people as could sit around the sides including 4 squares on the side opposite the ~~women's~~ side of the corral.

A fire in the tepee & 8 around the edges of the circle kept all light & warm, & were constantly replenished from a big pile of pitchy wet pine wood outside.

The men came in early & sat or lay or stood around the fires till time to begin. The squaws came in & sat around the fires on the left side till the music got to their toes & then went out & danced in groups alone. The music seemed to be mainly by 4 or 6 old men at the far end of the tent, sitting on the ground, singing & drumming on some dull sounding drum & rattling in the hills. The music was a chant, as weird and strange

as the whole seems, but it went to your toes as effectually as that of a good orchestra - In trying to write it I got a queer medley.

Hä he hi' hä hi' ya ya

Hä he hä' hä hä' ya ya

Ah ah ah' ah ah' ah ah - gathered

Hi i i' i i' i i' high falsetto

& so on with frequent change & an occasional pause when the rattle dead. The time was perfect & formed an even beat for the 6 steps front, 6 steps back of the dancers who stood facing 2 squares & 2 bucks as close as they could without stepping on each other's toes. In one square the bucks placed a hand on the shoulder of the his partner, or sometimes both hands, but usually they

danced without touching - back & forward - back & forward like the waves of the sea - a rhythmic swing. Probably 20 sets of 4 each (107 only 2) were dancing in the coral at once & starting at different times the notes were also a medley - crossing irregularly.

The girls choose partners & two ushers go after & drag them from the crowd in ones or twos as the girls signify who they want. The chosen bucks hang back & go lame & try to escape but are yanked along & placed in front of the ones who chose them. The girls act embarrassed & cover their faces with their hands & the boys look sheepish till they get fairly warmed up to the dance. Some are awkward & others graceful, & easy. The men wrapped to their noses in gay blankets, hats on, bells jingling from their leggings & only fingered moccasins showing below, the women wrapped in gorgous shawls held gracefully about their

were a beautiful as well as graceful picture in the yellow firelight under a canopy of blue smoke plumes wafted smoke.

We staid for 2 hours & then went to camp & left them to dance out the night. We were the only white spectators - The few Mexicans were there to sell fruit, having come with wagons or burros packs from Espanola & the San Juan River valley. I noticed Utes & San Ildefonso & Santa Clara Pueblos in the audience but only the picarillas danced.

Sept 14 - Hunted & worked till noon, then loaded up & started for Lake La Jara - 7 miles due west. Followed up easy slope through yellow pine forest about 4 miles, over a low ridge & then down an easy grade about 3 miles to the lake. The barometer at starting read 7550 and at Lake La Jara the same but in going over the low ridge I did not realize that we were crossing the Continental Divide & did not read the

the barometer. It was not more than 200 or 300 feet above the lakes. The whole trip was through beautiful open yellow pine forest with grassy parks, long ridges & streamless valleys but no water. Junipers & nut pines grow on south slopes all the way except over the highest part of the divide.

*Artemisia arbuscula* is abundant in the parks near the divide and a patch of *A. caava* grows in a park a mile east of Lake La Jara. *Artemisia tridentata* is common in places & *frigida* all across.

Lake La Jara is an alkaline pond  $\frac{1}{4}$  of a mile long & 15 feet deep. A big dam 30 feet high has been built across the lower end to make a reservoir of the lake. Lots of ducks & geese & coots & snipe on the lakes. The forest is full of fine lumber trees & ought to be put in good shape for harvesting the ripe timbers & dead trees.

Sept. 17. Remained at the lakes shooting ducks & other birds. Migration is in full blast & many species of ducks & snipe are here, but I was surprised to find a brood of downy young of the Ruddy duck & another brood that could not yet fly.

At noon the horses came into camp silently & foot loose - the bell & bobbles having been stolen which they were out feeding. Fearing this was only an unsuccessful attempt to run off the horses we thought best to move camp to a place where we could picket them near us, so filled our keg at the shallow lake, where the muddy water was less alkaline than at the deeper lake & came back a mile or two on the road we had come & camped in a park of the yellow pine woods. Gramma & other short grass is abundant. The woods are beautiful & an undescribed species of chipmunk lives around camp.

Found a well of fairly drinkable alkaline water half a mile from camp.

Sept. 18 Sun a - Remained at camp  
and did a - writing & hunting.

Sept. 19 - Started for Dulce and again  
passing the lakes turned north &  
crossing several low ridges up &  
down easy grades through beautiful  
yellow pine forest finally came into  
a long draw & followed down it to  
Dulce, for the last 3 or 4 miles  
mainly in Upper Sonoran zone.

Averaged at camp near 7500, at the lakes  
7425, and at Dulce 7000.

While the whole country is mainly  
Transition zone the south slopes are  
generally covered with nut pines &  
junipers, especially if steep & rocky.  
The open valley around Dulce is  
mainly Upper Sonoran, covered  
with sagebrush & *Sarcobatus* & a little  
grass on the flat part that is fenced  
in. Outside the sheep & goats have  
cleared off most of the vegetation from  
valley & base and hills. Some juniper  
& nut pines is scattered over the  
south slopes & yellow pines come down

to edge of valley on N-E. slopes.  
A dry creek bed runs through the  
valley but there is no water, no  
irrigation, no farming. A Mexican -  
Mr. Gomez - has a big herd of sheep &  
a fine ranch in the best of the valley  
2 miles from Dulce - south.

A few Indian tipies are located in  
dry corners of the valley near Dulce  
and following down the dry draw  
we passed a dozen or 20 empty  
little one room log houses with usually  
a brush bower over the doorway.  
A few loads of Indians were seen  
returning from the dance, but few  
had returned to their houses. None of  
this places had fields or even pastures  
near. The only water was in wells or  
holes dug in the draw, usually at  
a long distance from the houses.

A few horses were seen along the  
draw. The grass is fairly good most  
of the way at a distance of 3 or 4  
miles from water. Sheep have cleaned  
it all off near water places.

Dulce to

Sept. 21. Packed & shipped specimens  
& sent reports & left Dulce at 3 P.M.  
for Horse Lake. Went about 7 or 8 miles  
and camped under yellow pines with  
good grass for the horses and  
a pool of alkaline water not far  
away. Came ~~up~~ up hill all the way  
with easy grade but poor road.  
Aneroid at Dulce read 6900 which  
is approximately correct, at camp  
it read 7400.

Followed open valley most of way  
but yellow pines covers the ridges on  
both sides. Sheep have eaten the  
country bare for the first 5 or 6 miles,  
then a little grass is found & at our  
camp fine grass a grass covers  
the ridges. Pools of alkaline water  
stand here along the gulches  
but no running water or good water  
was seen.

The country is mainly transition  
zone with lots of good pine timber.  
But pines & junipers occur on  
slopes at lower end of valley.  
Pseudotsuga is in odd gulches.

Sept. 22    Camp to Horse lake

Arrived at camp road 7600  
and at Horse Lake 7800, 5 or 6 miles,  
+ mainly up gentle grade through  
open valleys + parks. Yellow pines +  
oak st. on ridges.

Apparently Horse lake is on the  
continental divide with about 15 feet  
elevation on each side of it. It is  
in a break of the ridge which runs  
200 to 500 feet higher. A big open  
valley with excellent grass opens out  
on the North & west sides of the lake.  
Lots of Indians are camped in the valley  
in tipis + their herds of horses are  
running in the valley. Water stands  
in tanks from late rains + is good.

The lake is half a mile long + quarter  
of a mile wide. The water is a few inches  
to a foot deep, or probably deeper in  
the two ends. It has been 6 or 8 feet  
deeper within a few years + the lake  
twice its present size. The water is  
very alkaline + scarcely drinkable  
for horses. The shores are flat with few  
trees. Lots of ducks + coots +  
birds on the lake.

Horse Lake to Obama River.

Sept. 23 - Rained hard in forenoon so we did not break camp as we intended. Instead took a horseback trip around the valley & over the high ridge & through the timbered gulches. Found lots of aspen groves & dense thickets of Alder-cherry, oak & *Pseudotsuga*.

The mts. to the N.E. begin to show fresh white caps & it turned cold & sharp after the rain.

Sept. 24 - Started at 9:30 for the Obama River near the saw mill & reached it at 1. Aneroid at camp 7800 at river 6850. Came most of the way through beautiful open yellow pine wood & grassy parks, but for the last 3 or 4 miles through mainly juniper & nut pine ridges with the ground eaten bare by sheep. The late rain has filled pools all along but left the woods muddy & slippery. The Obama river is high & muddy, but we got a keg of good rainwater from rock pools. Camped under *Populus angustifolia* on river bottoms a mile above the mill.

To Stinking Lake

Sept. 25 - Found it was Sunday  
but had to go in to <sup>P</sup>Tierro Manilla  
for supplies & a new wave. This took  
most of the day.

Sept. 26 - Hunted up in the canyon in  
forenoon without much success.  
Packed up in P.M. & drove down  
to El Nado, then west to Stinking  
Spring Lake, about 7 or 8 miles.  
Aneroid at camp read 7200 on  
starting which was 400 feet higher  
than usual. The same at El Nado  
& 7700 at Stinking Lake. The lake  
is probably not over 7500 feet  
Like Boulder & Horse lakes it is  
merely a basin in the summit of  
the divide. The rise east of the lake is  
probably  $\frac{15}{40}$  feet above its level, that  
to the west ~~a few~~ <sup>several hundred</sup> feet higher. There  
are at least 3 outletting ponds besides  
the main lake & some of these are  
deep & permanent, with tubes around  
shore. The main lake is probably  
4 miles long, crooked & winding in  
3 nearly separated bodies.

Great numbers of coots & ducks are living quietly on the lake & there are young Ruddies & half grown coots & I think immature redheads. The tule borders offer good breeding grounds for ducks, coots, rails, marsh wrens & redwinged blackbirds, all of which are common.

The water in the small lake near our camp is up to my neck just out of the tules & I don't know how much deeper out in the middle. The bottom is covered with wild celery which the coots & redheads are constantly feeding on, diving for it or picking it from the floating mats on the surface that have been brought up. Their stomachs contain little else.

The red heads are delicious but the coots, tho' fat, are still flavored more with coot than celery. They are fairly good but still rank.

The water is very cold - my last swim, Oct. 3, for a red head out as far as I could kill it with the shot gun was in water close to  $32^{\circ}$ , after hard frosts.

Stinking Lake

Sept

Oct. 30 - Took a horse & went 8 or 10 miles west of the lake but did not reach the divide. Came back over one of the highest ridges where I could see over the whole western part of the reservation. The top of this ridge was 7900 feet and I could see nothing much higher in any direction on the Reservation. The Mts. to the North, in Colorado are getting solid white with snow & look cold.

The finest junipers run nearly to the tops of ridges on hot slopes, so there is a pretty complete mixture of Upper Sonoran & Transition zones. This is also shown by Perodipus, Perognathus, Onychomys & Lepus texianus at the lake. Still the dominant species are Transition on the reservation. The yellow pine timber is not so good to the west as farther north.

Came back around the south end of the lake, & saw 5 Canada geese in one of the arms. Several apparently deep arms of the lake at the south end are full of red reeds & coots & other ducks.

To El Vado & south

Oct. 3. Broke camp at Stinking Lake  
& came down to El Vado, got mail &  
supplies & then started south for  
Gallinas Mts. For about 10 miles we  
traveled over barren, sheep eaten  
sagebrush valley with no water, no  
grass, & almost no live vegetation.  
The escarpment to the west is covered  
with timber & in one place we  
crossed a juniper & went up ridge  
only to come back into the valley  
of another dry wash. About sundown  
we found a muddy rain pool & watered  
the horses & filled our bag & went on  
a mile or two to the first good  
grass we have seen this since leaving  
El Vado & camped at the west  
base of a pine covered peak, called  
on the old land office map Gallinas  
Peak. We were just on the edge of  
the sheep range with a big flock  
half a mile back of us. but the  
Grana grass is tall & thick & good.

Aneroid at El Vado read 7000  
ft., at camp 7200, but only 7100  
the next morning.

To Gallivias.

Oct. 4 - Traveled all day in a southerly course over rough roads and reached Gallivias town at sundown - Camped near town - came about 20 miles. Followed valleys between tilted mesas with most of the way with an escarpment cliff of sandstone on our right varying from 500 to 1000 feet high & long timbered slopes running up to the left and forming the same kind of escarpment wall to the Clama River farther east. The whole country is in layers of sandstones, gumbo, shale etc. - tilted up to the east. The breaks make narrow valleys where the softer strata have disappeared. Generally the soil is sandy, but in places it is gumbo. There was good grass all along, no sheep, & little stock of any kind. No water except in rain pools & a few springs or two until we reached a big arroyo about half way where a little water was running in places on the broad sandy bed. We landed

here. The grass is big & untouched  
no a few cattle were seen & a few  
little Mexican jacals were seen along  
the arroyo. Most of our road  
was through sagebrush valleys  
ranging from 7000 to 7500 feet  
in altitude, but in one place, a  
mile or two after starting we crossed  
a beautiful yellow pine ridge & in  
several places we traveled through  
juniper & nut pine country. We  
could see Douglas spruce along the  
cold sides of the escarpment &  
extensive yellow pine forests covered  
the ridges on both sides of us.  
I should say half the country is  
yellow pine transition, the other half  
nut pine & sagebrush Upper Sonoran.  
Am trying to map the zones &  
trees in the land office map but  
find the map gives little idea of the  
country.

Gallinas town is a Mexican settlement  
of a half dozen little adobe houses  
& the store & P.O. are in another little  
adobe half a mile beyond. The few little fields  
of grain would not raise good crops.

To Rio Pueras & Gallinas Mts.

Oct. 5.

Found that we could not follow up the Gallinas River, a tiny sandy bottomed creek of red water, but had to keep around the east sides of the mts. to the south end of the range. Passed through Capulin, another little Mexican settlement & clusters of half a dozen adobes, then over to Coyote Creek & across the Pueras River and camped at sundown at the south end of the main range. Another and apparently higher & partly detached range to the south seems to have no name unless it is called a part of the Gallinas. The main range around which we circled, is called on the old land office map the Mesa Prieta & is really like a great rounded mesa. There is no peak & it is covered densely with timber, spruce pines & aspens. Now the aspens are bright yellow & give their color to fully half the surface of the mountains, mixed in with the black spruces.

The base of the range is all yellow pine forest, open, clean, grassy, & beautiful. Our road for 20 miles along the east side is mainly through this virgin forest, which strange to see is scarcely mutilated by man. Even fire has done little to harm it. The trees are thrifty, large, clean and beautiful. It compares well with the San Francisco Mtn. forest before the mills were started. and it covers an extensive area. The plateau east of the Gallinas River is also apparently well treated, while the valleys & canyons are covered with nut pines & juniper. There are lots of open, grassy pads but no water for long distances & little stock. Almost no sheep. In places the young pines are coming in in abundance.

We found a small settlement on Coyote Creek, but crossed the Purcell in the canyon above rememb-

Gallinas Mts.

Oct. 9 - Rained all night & in morning  
the top of the mts. above as showed  
a white blanket - Started early for  
the top & tramped all day, reaching  
the highest part of the flat topped  
Mesa Prieta at 10400 feet or the  
highest part I could find. Five miles  
further N.W. they seem to be a little  
higher. A good trailing snow  
covered all the open spaces on  
top but did not reach the ground  
under thick spruces. The forest over  
the sides of the mts. is open, that on  
top is mainly dense fir & spruce  
& aspen. The top is nearly level  
with rich soil, but there is no little  
grass or undergrowth that efforts to  
turn off the timber root not been  
entirely successful. The trees are  
largely *Picea engelmanni* & *Abies lasiocarpa*  
with aspens mixed in. The sides of  
the mts are also covered with rich  
mellow soil that yields good grass  
in the open & fine, thifty trees cover  
not burnt.

Found no signs of game

except one lynx that I nearly stepped on in the thickest of the top woods. There is no water on top, the streams coming out mainly at 9500 to 10000 feet. Found a fine large creek on the west slope & followed down it to 9000 feet, then around to camp over the low gap where the road crosses between this range & the southern extension of the Mts. at 9300 feet. Got a Sciurus aberti ~~whop~~ - & a Cynomys gunnisoni & a lot of birds but saw no trace of big game - deer, bear, or turkeys.

There is no mast this year in the mts. except a very few acorns & if there was any game here it has left to find food. In the morning while out for the horses near camp two large blacktail does came across the open gulch & then walked past within 5 or 6 rods of camp & went down the Puerco canyon, probably going down for better range.

Gallinas Mts.

Oct. 10. Crossed the Coyote Creek Canyon & followed up the east fork of Coyote Cr. to near its head on the big ridge that is a southern extension of the mts. we are in & probably should stand as a part of the Gallinas range. No one seems to know any name for it, but the "habitants" say "all same Gallinas." It is the best part of the range, being on a level with the mts. N.W. f.s. - 10400 approximately. More streams rise in this ridge & the top is beautiful park & spruce country with meadows & little lakes, but it is easily accessible to the sheep ranches all round and is eaten off bare & clean. Even the woods are so shaped out as to prevent bare ground & bare trunks. The timber has been burnt off as far as possible, but fortunately the yellow pines stand burning pretty well & have not been injured much while much of the higher spruce forest will not burn. This leaves

much of the forest in good condition.  
The soil is good & not much of it  
washes so and grass would be  
knee high if left <sup>about 18 or 20 months</sup> a season.  
~~Snows~~ To the S.W. a large dome  
shaped Mtn. rises high enough to  
back a N.E. timberline bald spot,  
probably reaching 12000<sup>3</sup> ft. It seems  
to be connected with the ridge &  
is covered with black forest as  
is also a big ridge sweeping  
around to the west of Mtn. Preta.  
Still west of this a high, forested  
ridge runs N. & S. & is probably  
the Caja Blanca.

The whole country offers a magnificent  
area for forest reserve,比 the one  
extending than I had supposed.

Even the canyons of the Puerko &  
Coyote are full, except along the walls,  
of magnificent yellow pines & douglas spruce,  
the trees often 5 feet in diameter & 100  
feet high with as perfect trunks  
as I ever saw. The mesas are  
almost pure yellow pines. The tops  
of the mts. are Canadian zone

but well worth saving for the snow  
they hold & distribute in numerous  
streams on all sides. There  
is abundance of water, fine  
soil, & good timber if the country  
is ever developed beyond what  
the lazy Mexican squatters on the  
few naturally fertile & easily irrigable  
patches along the creeks can do.  
If sheep could be controlled & the  
timber company that is working  
its way south from El Paso  
could be headed off this would  
be a Paradise - if not it will  
soon be a barren, unfruitful  
form of Hades. If it could  
be rescued soon there is game  
enough to restock & make as  
good a game & trout region  
as there is out doors, but now  
the game is scarce.

I saw a few turkey signs in the canyon  
& shot 2 blue grouse on top of the ridge,  
but saw no signs of deer or bear.  
Could not resist getting out my book  
& line & in a few minutes caught 10 fish that  
was the head of Coyote Cr.

To Coyote

Oct. 18: Broke camp at 2 P.M. & came back across the Peñasco Canyon and down to near Coyote & camped by rain pool. Had fairly good roads & mostly down hill. Came about 12 miles Aneroid at camp 8500, at Coyote Camp 7000 feet. Most of the way through junipers & nut pine country. The bottom of Coyote Creek valley is narrow & rather barren except for the little Mexican ranches along the flat spots. Lots of water goes to waste and much more land could be irrigated & made valuable.

At one ranch we stopped for grain but could get only wheat or corn. We took the wheat & bought some very good apples.

Did not camp till dark so could set no traps.

Found lots of *Opuntia arborescens*, & 2 flat species of *Opuntia*, *Acus paucispinus* & a little *Mimulus* & other Upper Sonoran plants in canyon.

## Chama Canyon

Oct. 12 - Started early & came across to Campon Cr., then down it to Chama River and down it to about 5 miles above Abiquiu, where we camped in the canyon. The road is washed out in many places & we had to stop & build new grades, in & out of the gulches in several places. Some sandy strips were heavy and travelling was slow. Were surprised to find an old railroad grade down through the Chama Canyon. It has been washed out in many places & filled with boulders from above in others. A man told us it was built in 1880. The road was also washed out in places but had been partly repaired. Found no grass for our horses as the canyon has been shaped out.

Camp in waving 7000, Chama River 6150 - Camp 6150.

The Chama canyon is narrow & so far uninhabited.

Abiquiu.

Oct. 13. Soon after leaving camp we came out to a wider part of the valley where ranches begin, & a few places washings are located. Then crossed the river and followed a ranch country to Abiquiu, to which we recrossed, then down the open river valley about 10 miles and camped on a wide, sandy slope of the valley by a rain pool. Remained here a day & a half collecting & writing reports.

Below the Chama Canyon the soil is very sandy, the roads dry & soft. Sand blows into great dunes & drifts and the broad sides washed are beds of sand & stones. The bordering hills & cliffs are mainly sandstone or drift or barren bedrock formations. All but the valley bottom & much of it is covered with red pine and *Juniperus monosperma*. The blue *Juniper* (*flaccida?*) has disappeared. Where not eaten here the valley

yields good grama grass  
and such Upper Sonoran plants as  
*Lycium pallidum*, *Sarcobatus*, *Atriplex*  
*cancescens*, *Forestiera neomexicana*?,  
Sagubrush & Bigelovias with great  
abundance of *Opuntia arborescens*,  
*O. engelmanni* no. 911, *O. polyacantha*?,  
and *yucca glauca*.

The little Mexican ranches along the  
river bottoms include only the patches  
easily put under irrigation. The high  
water has recently washed out many  
of the fields & covered corn & alfalfa  
with sand. The Chama river bed is  
so wide & flat & sandy there is little  
hope of forming reservoirs here, but  
modest ones could be made in  
the canyons above. A good deal of  
adobe soil crops out in places &  
could be used for ditches & reservoir  
lining.

At Abiquiu Mr. Grant who has  
the store took us into his orchard  
where some of the most delicious peaches  
& apples we ever saw were still on the  
trees. His grapes & plums had all been gathered  
but he has proved what this soil & climate can do.

## To Espanola

Oct. 15 - Started at noon & travelled slowly down the valley through deep sand! Occasionally we would strike hard ground & good road for little way across a clay point, but in every gap the sand has blown into the valley or washed down or drifted up from the river bed till the roads are very bad.

Very few ranches were seen until near the mouth of the Chama where they are all along the river flats - little Mexican or Indian patches & gardens and orchards. The adobe houses are now gay with strings of chili & piles of corn & squashes adorn the house tops & door yards. Little stacks of alfalfa & corn stalks cap the barns or sheds, but all is on the smallest scale of poverty, meets to mouth living. Some day this part of the Rio Grande valley will be a rich & closely cultivated region.

Camped at the ranch of Francisco R. Cerna 3 miles above Espanola who proved to be an uncle of our camp man José Fernández.

## Espanola

Oct. 16. Sunday morning.

Waited till noon to read & write letters, then drove down to Espanola and 2 miles below to the Santa Clara Pueblo & camped just above the Pueblo on Santa Clara Cr. Saw Mr. Thos. S. Dozier at the Pueblo, but can do nothing about storing outfit till tomorrow. Gant set a lot of traps.

The Santa Clara Pueblo is too civilized for much interest. The houses are mainly one, or a few 2 stories high, with doors or windows & in general not very different from the Mexican adobes. The people are bright with pleasant faces, but less picturesque than the Taos. Some dress in white man's clothes & I think many are mixed with Mexican.

Mr. Dozier's wife is a Santa Clara.

Mrs. True, the teacher says the average expenditure of the Santa Claras per capita per year is \$25. She has taken a careful census for two years with practically the same result.

## Española

Oct. 17 - Went across river to see about wintering horses but to no purpose. A cold night with ice on water in morning.

Oct. 18 - Broke camp & went into town and staid with Mr. Stafford. Stored outfit in his shop and arranged to have him take horses to Colorado for winter.

Oct. 19 Packed up & left Española at 4 P.M. & reached Santa Fe at 6. Was surprised to find pine grass between the Rio Grande & Santa Fe and juniper & nut pine country all the way. Saw woods & holes of Dipodomys spectabilis halfway from River to Santa Fe.

Got supper at Palace Hotel & took 9 P.M. train for Lamy, arriving at 10:30. Mrs. Bailey took east bound train at 12:30 & I had to stay over till morning for train to Albuquerque. All trains are late on account of wash outs from late rains.

## To Albuquerque

Oct. 20. Found the country around barren nut pines & junipers hills, rather barren. A little to the west the middle of the valley opens out & is grassy or barren. At the little town of Corrales we are near the north end of the Jinetes Mts., which are steep peaks nearly as high as the Sandias with tall timber of some kind over their tops.

A trip from Espanola down to Corrales, then into the Jinetes Mts., then to the Sandias & Manzanas is worth making.

At the Rio Grande we strike the pueblos & farming country all along. Lots of fields of alfalfa are just being cut but most the crops are gathered. The cottonwoods along the Rio Grande bottoms are a golden belt. Large ponds of overflow water stand on the low parts of the river flats & ducks are thick on some of these.

Reached Albuquerque at 1:30 P.M. & have to wait till 2 A.M. for train to El Paso.

## To El Paso

Oct. 21. Left Albuquerque at 4 A.M. with a hard frost on the grass & ice on shallow ponds. A little scattered mesquite in the sandy trees of lower Laram. Just upon reaching Polvorosa the first patches of Laram were seen on south slopes of a black lava mesa & some Baccharis in side gulches of valley & a few bushes of *Prosopis pubescens*.

At Socorro Laram becomes common on black mesas, both mesquites large & common on flats. *Rhus microphylla* and *Ephedra trifurcata*; common & *Baccharis* abundant to all along the San Mereal.

The San Mereal Mts. west of San Mereal are high with yellow aspens over the top. A patch of aspens also appear on old Badley of the Mogollon. The Polvorosas are low & bare. The Black Range is too far to the SW. to stand more than a heavy black ridge. The red top *Fus. Ovatobols* are a low, bare ridge without timber. *Yucca rodiosa* grows over their tops. The Caballitos are another low, bare range without timber.

## El Paso

The San Andes on the east are mainly barren but bleeds patches of timber (apparently just pine & juniper) occurs on their higher parts.

The mesa is a grassy plain with numerous lakes in the depression at present. *Yucca radiosa* is scattered all over it & some of the thick leaved *baccharis*, or form of it, is seen. *Zizania* is common in places but nowhere on north slopes & mainly on black lava soil. Engle is a little town on this plain with stores, saloons & hotel.

Back to Rio Grande at Rincon - where a dried orange from the valley above is sold. The cottonwoods have not begun to show yellow. There seems to have been no frost. Alfalfa & all vegetation is fresh & green. Some Sonoran plants exclude all others. Apples still hang on the trees at Las Cenizas & Nacimiento Park. Reached El Paso at 7 P.M. A beautiful ~~sunny~~, warm, moonlight evening with a southern softness.

Oct. 22 - Went to ~~the~~ 416 McGoffin Ave where Mrs. Holm used to keep the nicest boarding house in El Paso but found it had been sold to Capt. Bell, who has a good Chinaman to run the house, so staid with them. Spent most of the day getting supplies for present & next year's trips.

Oct. 23 - Sunday - Finished back reports & took evening train for Valentine, arriving at 1 P.M.

Oct. 24. In forenoon tramped over plain & took photos of *Yucca radiosa* & *macrocarpa*. One of the latter has 5 fairly complete nests of *Corvus cryptoleucus* & traces of 3 older ones, the other has no fresh nests but traces of fully a dozen old ones between the woods of leaves.

Lonepurs & cactus are common in large fields raised. Had only rifle so could not shoot lonepurs but found feathers by post where birds had eaten one lately.

Saw Ollie Finley & talked birds with him.

## To San Antonio

Oct. 25. Left Valentine at 7:30 A.M. & reached San Antonio at 11 P.M. Snowing when we started & at Alpine there was 3 inches of snow on the ground & rapidly falling. At Marathon no snow but raining.

Vegetation unusually rank & thick abundance of grass all along. Many flowers out from the late rains Fouquieria having out.

Oct. 26 - Found attractions at the state fair at San Antonio & learned that 2 of the days were given to bird waving & bird tables so decided to stay

Oct. 27 - Went up to Austin & spent the day in University & State libraries looking over early Texas literature.

Oct. 28 - Returned to San Antonio & attended bird waving convention.

Oct. 29. Read in Carnegie Library in forenoon - Attended Farmers convention in P.M. for bird talk.

Nov. 20. Left Eagle Lake at 4:30 P.M. & reached Liberty at 8:45. The country is almost entirely prairie to Richmond, & sparsely settled. Great stretches of prairie are untouched & untroubled.

Cypresses are common along East Caddoan Creek.

Nov. 21. Drove over to Blairs Mill, 4 miles N.W. of Liberty, where I found Bray. Hunted in woods part of day.

Nov. 22 - Drove N.W. about 16 miles to Mrs. Carter's farm on west side of Taskington Prairie and in afternoon went hunting cats with the boys.

Mounds are numerous both in woods & across prairies.

Nov. 23 - Hunted from before daylight till after dark but did not get much. Caught one coon in morning.

Nov. 24 - Went to Cleveland in P.M. with Prof. Bray. Got camp supplies & returned

Nov. 25 - Fixed up outfit for camp trip - took a few photos.

Nov. 26. Left Mr. Ab Carter's place at 9 A.M. and crossed Tarkington Prairie and continued east through heavy timber to Odors Lake near the Trinity River. Camped at lake near widest place & hunted & set traps till dark. Pine & hardwood timber covers the sandy land between prairie & river bottoms, hardwood & cypress covers the black land bottoms. Both sets of timber are dense & tall and full of magnificent trees.

Half way through the pine timber I found 2 ivory billed woodpeckers pounding & calling near the top of tall dead pines & shot them - saw one other but it escaped. At sundown near our camp I found 3 on a tall dead cow oak which has a large hole about 60 feet up where they evidently intended to roost. I shot one & the others took off but were on the tree again at daylight the next morning.

Nov. 27. Caught nothing, but saw 2 of the ivory bills again. They were wild & I could not get a shot.

Their voice is a loud nasal ant, ark, auk, that at a distance sounds like a rachet close by.

Skinned the ivory bills & a wood duck & started for Batson. Crossed the river at a ferry about 3 miles below the lake, then struck due east through more open timber & across Batson Prairie. Camped a mile west of town.

Nov. 28. Went through Batson, a new dirty oil camp & east to Salatoga another gushing oil town in the woods. The North about 5 miles to old man Flowers' place in midst of big thicket & arranged for use of 2 hounds. Then went on 2 miles & camped at old oil well beside 7 miles N.E. of Salatoga remained here hunting in thicket till Dec. 7.

Dec. 15 to Leon Lake.

Dec. 16. To Dan Griffins place

Dec. 17. To Salatoga again

Dec. 18. To Brogg & Cleveland

Dec. 19. To Navasota.

Dec. 16. To Houston & remained over night.

Dec. 17. Left Houston at 6:30 AM, on  
S.P.R.R. for New Orleans.

Big Thicket along all streams across  
east Texas & southern La. Almost  
surrounds Beaumont & Lake Charles.  
Wide prairies between streams.

Cotton, rice, & sugar are the  
main crops. Very little fruit.  
Apples won't grow at best, Pears are  
poor & trees do not live long - are  
troubled with blight. Peaches are  
poor & trees soon die. Oranges  
do well till a freeze comes.

There has been little fruit in  
southern La. as yet & the sugar  
cane crop is not nearly all gathered.

The conspicuous plants of the  
Thicket all the way to New Orleans  
are cypresses, Tupelo gum, Myrica  
Magnolia (Bay), Sabal etc.

Dec. 18 New Orleans via N.Y.Z. & So.  
9:35 A.M.

Same old Big Thicket plants all  
along on bottoms, Myrica & Bay  
abundant & conspicuous, Big marshes,  
open woods of *Pinus taeda* & *palustris*.

Oranges ripening on trees, banana  
trees not frost-killed,

Mainly poor white sand soil  
open piney woods from Bay St. Louis  
to Mobile - Some <sup>small</sup> swamps along  
streams - After passing Mobile  
we go for nearly an hour through  
swamps & across many creeks &  
lagoons. These swamps are  
dense jungles of cypress, bay,  
Tupelo gum, marsh gum, dogwood,  
Sabal & vines - a red breed  
Smilax being abundant & passing  
vines common.

Later we strike into sandy  
pine woods again, some fine  
forests of long-leaved pine & mostly  
felled for turpentine. At first  
the country is somewhat hilly &  
ridged & the timber mixed pine  
& deciduous trees -

All of these southern woods are  
but except pines, live oaks, pin oaks,  
magnolia & evergreen shrubs.

At Georgiana the country is  
gently rolling & ridged, of red sand  
and with good timber of *Pinus*  
*taeda*, *echinata* & *taeda polystachys*,  
mixed with deciduous trees.

Extensive woods, few farms &  
little towns, no fields or crops

About the same to Greenville  
where it grew dark, and apparently  
the same to Montgomery.

Taos Indian Names of trees -  
for Sam Elk.

<i>Pinus ponderosa</i>	-	wey suéma
<i>Pinus flexilis</i>	-	pah wey sana - water pine
" <i>aristata</i>	-	kham wheéna - lions tail
" <i>edulis</i>	-	tah wéna - name of the nut
<i>Pseudotsuga</i>	-	
<i>Abies concolor</i>	-	uh pah yea mé na ma - hair leaved spruce
" <i>lasiocarpa</i>	-	kui pah mu nah - soft bark spruce
<i>Picea engelmanni</i>	-	kui koa wahna - bear bark spruce
" <i>pungens</i>	-	pah kui wah na - water spruce
<i>Populus tremuloides</i>	-	nau téna
" <i>angustifolia</i>	-	tu sa' na
<i>Quercus gambeli</i>	-	qua slá na
<i>Juniperus monosperma</i>	-	ku'na - red cedar
" <i>flaccida</i>	-	ku pah hína - gray cedar
" <i>communis</i>	-	pah hu' wa léne ma - water cedar medicine
<i>Acer glabrum</i>	-	pah tu tsi' coo una - white willow
<i>Salix cordata</i>	-	Cah nea tslá na. - Buffalo willow.
" <i>negra</i> ?	-	Eah tsla pah yéna - Red willow, name of tribe
<i>Prunus</i> plum	-	Poo loo lo' nah
<i>Alnus incana</i>	-	Zoo loo loo nah
<i>Betula occidentala</i>	-	Zoo huá' u nah
<i>Ribes leptanthum</i>	-	pe hué huéna - headache berries
" <i>d. insigne</i>	-	cua pah sue too'nah - bearwater berries
Raspberries	-	teel huéna - grivel berries
Strawberries	-	tsé ha tel huéna - rat berries.

Zaa's Indian Numerals.

(From Sun Elk - Manuel Mondragon  
Ziauhltu)

1. Wáma
2. Wéema (wíéma)
3. Pah'na
4. Weána
5. Purúna
6. Mátse
7. Zsu'
8. Whéle
9. Whéa
10. Zem
11. Ze wama
12. Ze weema
13. Ze pahua
14. Ze wean
15. Ze punua
16. Ze matse
17. Ze tsu
18. Ze whéla
19. Ze whea
20. Weta
21. Witawana
30. Pahua te
31. Pahua te wama
40. Wean te
41. Wean ta wama
50. Puoru te
51. Purua te wama
60. Matsi te
61. " " wama
70. Tsu te
71. " " wama
80. Whele te
81. " " wama
90. Whea te
91. " " wama
100. Ze te
200. We ta te
300. Pahua te te
400. Wean te te
500. Purua te te
- etc
- 1000 Ze te te

Rattlesnake - Pah tsu una -

Lizard - Nah tu una - *Sceloporus graciosus*

" - Pah tu' tsu la una *Crotaphytus*

Horn toad - Coa toláha la una

Frog - Hu mata la una

Turtle - Isa lúna - Rattle box

*Crotophy wholeyi*, - Coa toláh wa se eva -

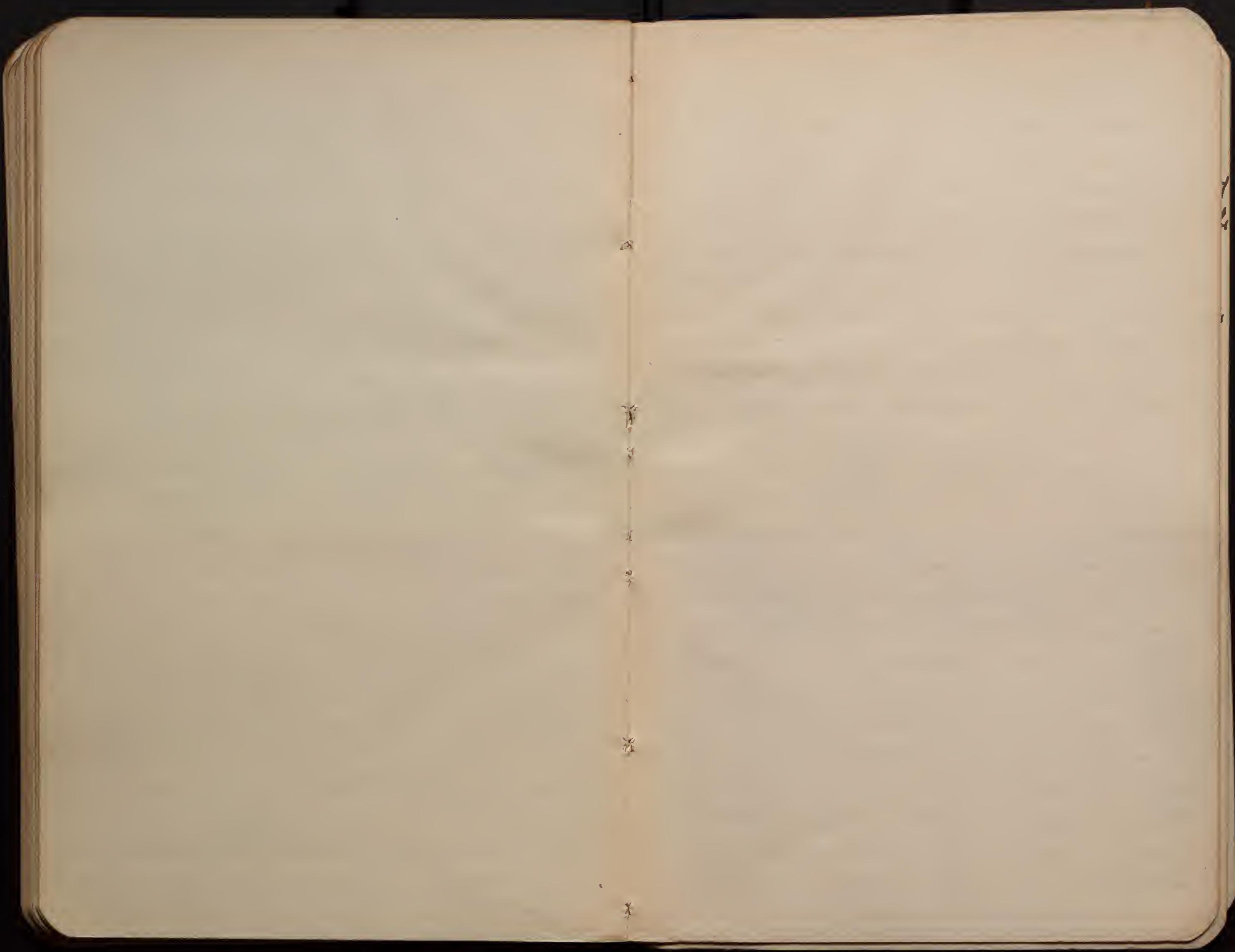
Quita pean na na ma - Red earth Mtn.

*Abies lasiocarpa* or *arizonica* = Kui pah nu nah - means soft bark.

*Picea engelmanni* - Kui koa wa nah, bear bark spruce

*Picea pungens* - Pah kui wa nah = water spruce.

(Nah kú na - leaves of all colors  
the man teaching his boys to dance. see photo)



# Taos Names of Mammals

<i>Odocoileus hemionus</i>	-	Pah'va	-
" <i>virginianus</i>	-	Puh bū'na na	- <sup>tree</sup> water fallarioi deer.
<i>Cervus canadensis</i>	-	Zuh rīva	- spotted, when young.
<i>Bison</i>	-	Cah nū'na	-
<i>Antilocapra</i>	-	Zah' ah'va	-
<i>Ovis canadensis</i>	-	Pean gū'na	- mountain sheep.
<i>Sciurus aberti</i>	-	Qua quā'va	- wood pitch squirrel
" <i>mexicanus</i>	-	Tsu wa la ana	- from his voices
<i>Spermophilus lateralis</i>	-	Nu yuna	-
<i>Entomias</i>	-	Qua when na	-
<i>Cynomys gunnisoni</i>	-	Ké <del>ah</del> rīva	-
<i>Sorex</i>	-	<del>the</del> Pah ka che na -	ditch mouse
<i>Microtus</i>	-	Pah tū'lena na -	
<i>Ictonyx</i>	-	Pah' na	- Pan u fma = earth
<i>Neotoma oriolites</i>	-	Hána	- thief
" <i>fallax</i>			
<i>Peromyscus</i>	-	Kla tae hā'na	- cactus mouse
<i>Spermophilus grammurus</i>	-	Kó'ah ke na	- rock prairie dog
<i>Perodipus</i>	-	Tua pīna	- jumper
<i>Perognathus</i>	-	Nun pō'si na	-
<i>Beaver</i>	-	Pah yá' nah	- water - - .
<i>Tribos</i>	-	<del>Pah hah mū'na</del>	
<i>Lepus</i> <i>fairdi</i>	-	Qua wa pe'na	- Spruce rabbit
" <i>pictus</i>	-	Pe'wēna	- rabbit
" <i>texianus</i>	-	<del>campsteus</del>	- white jack rabbit
" <i>texianus</i>	-	<del>campsteus</del>	- Cah tua pua na ana - black cumpack

Dog	-	Tau gū'na	- <sup>ā</sup> Tsu lanna-pup -
Cat	-	Qua lūwa	= little dog
<i>Felis concolor</i>	-	Muse ana	- from voice
<i>Lynx</i>	-	Tham' merah	- hiding -
<i>Vulpes macrotis</i>	-	Kean', museana, - mountain cat	
<i>Urocyon</i>	-	sal pun e ana	- little black coyote
<i>Coyote</i>	-	too wha tsule ana	- little yellow coyote
<i>Canis eatos</i>	-	too whataa la ana	- <del>for his voice</del> little blue coyote
<i>Canis grisus</i>	-	cā le'ver	- eaten
<i>Procyon lotor</i>	-	Pā su deva	- water dog
<i>Taxidea</i>	-	Cāl'd na uwa	-
<i>Mephitis</i>	-	Cue u la'na	-
<i>Putorius</i>	-	Hā nā usia	-
<i>Ursus americanus</i>	-	Cua <sup>(blade)</sup> pura ána	- blade bear
" "	-	Igla ca'na	- (climb trees) (wood bear)
<i>Ursus horribilis</i>	-	Cua <sup>(gray)</sup> pahzyá ána	- gray bear
Fisher			
<i>Zutra</i>	-	Pah hu'a pīna	- water
<i>Zutreola</i>	-	Sla mu'na	- tobacco bag
<i>Mustela</i>			
Bat	-	Tsi' le yak ak'na	- from his squeak
Butterfly	-	Tselle mi' ya uh'na	-
Fiber	-	Pah hak mu'na	- water - -
<i>Ochetona</i>	-	Tsa' ka na	- from his voice
<i>Erythizon</i>	-	Sá ma' na	-
<i>Arctomyx flaviventer</i>	-	Pean che hā'na	- Mountain mouse

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